Federica Crobu
May 2020

Capstone project: the battle of neighborhoods

1. Introduction

Suppose we have had a commitment by a chief of an italian restaurant networks who want to open a new restaurant in NY city. Specifically, he wants to find an optimal location for a restaurant.

The idea is to find a place in Manhattan that is not so close to other italian restaurant. However, the owner of the future restaurant is searching for a place close to hotels in order to catch the attention of the tourists.

Thanks to the application of data science knowledge we will find a good location for the new restaurant.

2. Data acquisition

The data used to solve our problem are the ones available in foursquare. With some simple query, indeed, we can obtain all the useful information we need. Moreover, the visualization tools of python will be perfect in order to see the results in a map, thanks to the folium package.

Thus, summarizing we will have the following factors that will influence our decision:

a. number of existing restaurants in the neighborhood (any type of restaurant)

b. number of and distance to Italian restaurants in the neighborhood, if any

c. hotels nearby

Following data sources will be needed to extract/generate the number of restaurants and their type and location in every neighborhood (in this case Manhattan) will be obtained using **Foursquare API**.

3. Methodology

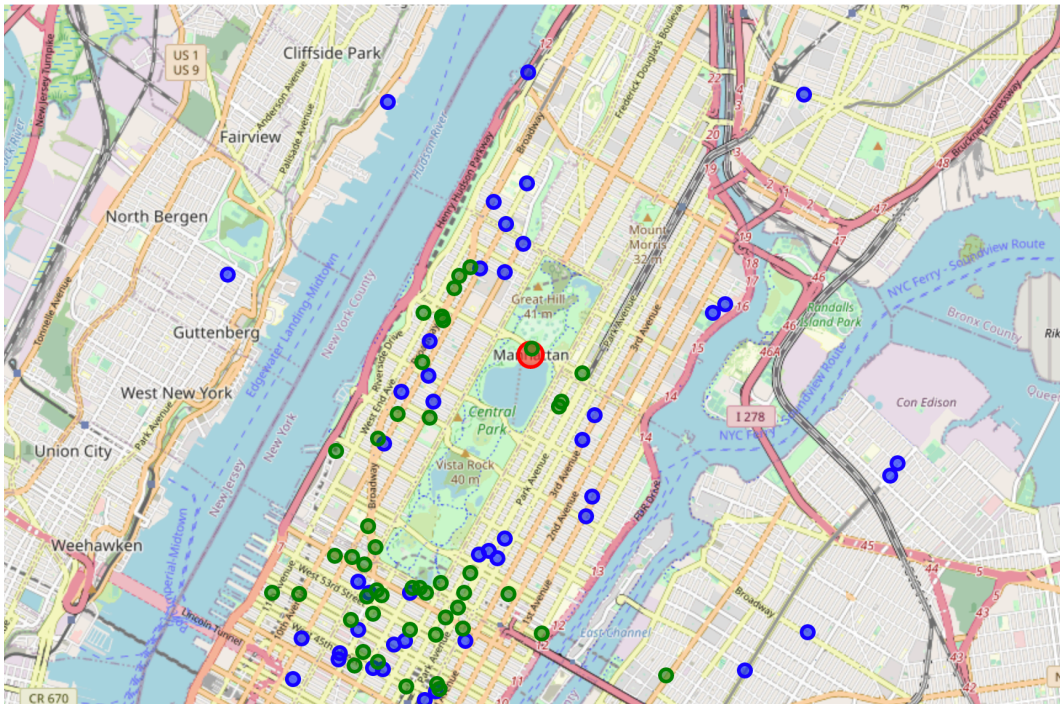
In this project we will direct our efforts on detecting areas of Manhattan, NY that have low italian restaurant density and high hotels density. We will limit our analysis to area ~5km around city center.

In first step we have collected the required data: location and type (category) of every italian restaurant within 5km from Manhattan.

Second step in our analysis will be the building of a folium map in order to make the stakeholders able to explore and search for optimal venue location.

4. Analysis

The analysis of the data we obtained using Foursquare can be mainly represented through visualizing the map below. The blue points are the italian restaurant, the green points are the hotels.



5. Results and Discussion

The final results is the map represented below. The idea is that through this map the *business people can make decision* by looking at the interactive plot.

Indeed, they are able to explore the different areas and add the information they have for example about the rent price of each neighbors or other business information they have.